



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/600,966	06/20/2003	Clyde D. Calhoun	52769US006	6567

32692 7590 11/02/2005

3M INNOVATIVE PROPERTIES COMPANY
PO BOX 33427
ST. PAUL, MN 55133-3427

EXAMINER

JUSKA, CHERYL ANN

ART UNIT	PAPER NUMBER
----------	--------------

1771

DATE MAILED: 11/02/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/600,966

Applicant(s)

CALHOUN ET AL.

Examiner

Cheryl Juska

Art Unit

1771

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 July 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 19-32 and 42-62 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 59-62 is/are allowed.
- 6) ☒ Claim(s) 19-25, 42-47 and 49-58 is/are rejected.
- 7) ☒ Claim(s) 26-32 and 48 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. Applicant's amendment filed July 20, 2005, has been entered. The title, specification, and claims 19, 22, 26, and 31 have been amended as requested. Claims 1-18 and 33-41 have been cancelled and new claims 42-62 have been added. Thus, the pending claims are 19-32 and 42-62.

2. Said amendment is sufficient to withdraw the 102 rejection of claims 19-32 as being anticipated by Yamanashi (GB 1,169,621) the as set forth in section 3 of the last Office Action. Additionally, the 103 rejection of claims 19-32 over the cited Yamanashi, Bye (US 4,451,419) and Giovanelli (US4,076,874) references set forth in section 5 of the last Office Action is hereby withdrawn due to said amendment and applicant's persuasive argument that Giovanelli does not teach a resilient release material for the template surface. However, the following new rejection is set forth below.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claim 55 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the

Art Unit: 1771

inventors, at the time the application was filed, had possession of the claimed invention. While the specification teaches the microfibers may appear on the surface of the substrate in a random or predetermined array (page 3, lines 15-16 and page 8, lines 13-22), the specification does not support the limitation of claim 55 wherein the resilient template surface has a random array of microdepressions therein. Since the specification teaches several methods of producing the microfibers, the teaching of a random array of microfibers is not necessarily equivalent to a random array of microdepressions. Therefore, claim 55 is rejected as containing new matter.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 19-25, 42-47, and 49-58 are rejected under 35 U.S.C. 103(a) as being unpatentable over GB 1,169,621 assigned to Yamanashi in view of US 4,451,419 issued to Bye et al. and US 3,976,820 issued to Giovanelli et al.

Applicant claims a method of making a unitary polymer substrate having a napped surface comprising the steps of (a) providing a template surface comprising a resilient and/or release material and having a plurality of microdepressions therein, (b) laminating a surface of a thermoplastic substrate to the template surface, and (c) delaminating said thermoplastic substrate from the template surface while maintaining the polymer surface in a sufficiently softened state

Art Unit: 1771

such that a plurality of microfibers are generated on the substrate surface prior to debonding of the polymer from the template surface.

This processes of laminating and delaminating a thermoplastic substrate to form pile-like fibers on the surface of said substrate is well known in the art as tack spinning. For example, Yamanashi teaches said tack spinning process includes the steps of (a) providing a thermoplastic substrate, (b) providing a heated matrix having a plurality of conical depressions therein, (c) continuously heating said substrate until the surface is molten, (d) pressing said molten face into the depressions of the matrix, (e) cooling the backside of the substrate, (f) delaminating the substrate from the matrix, and (g) allowing said thermoplastic substrate to set (page 1, lines 42-65). The depressions may be present in an amount ranging from 120 to 2000 depressions per cm^2 (page 2, lines 1-4). Figure 4 shows fibers having tapered and curled ends.

Thus, applicant's claimed invention is known in the art with the exception that (a) the depression are microdepressions, (b) the template is formed of a resilient and/or release material, and (c) the fibers formed are microfibers. First, it is known that the size and shape of the depressions can be varied to produce correlating changes in the fiber size, cross sectional shape, and length. Note Bye's teaching "the nature of the pile (i.e., the fibril density and length) depends upon the depth and size of the cavities [depressions]" (col. 1, lines 28-42). Hence, it would have been readily obvious to one of ordinary skill in the art to modify the size and shape of the depressions, including an undercut-shaped or partial sphere shaped, in order to obtain a desired pile. A change in shape or size is generally recognized as being within the level of ordinary skill in the art. *In re Dailey*, 149 USPQ 47 and *In re Rose*, 105 USPQ 237, respectively.

Additionally, it is known in the art that the length and size of the fibers can be modified by varying the heating and cooling temperatures and the drawing or delamination speed. Note Bye's teaching "the length of the individual fibrils...depends upon the length that can be drawn out from the sheet before the fibrils break and also the position at which the fibrils break" (col. 2, lines 1-4). Bye continues to discuss the importance of temperature in determining the pile fiber structure (col. 2, lines 5-30). Yamanashi states, "The adherence of the plastic to the walls of the depressions differs according to the local temperature of the molding drum as well as the local cooling of the laminate and also according to the shape and diameter of depressions. Thus when the plastic is withdrawn, the hair-like filaments will all differ in length, the length being from 1.5-3 times the depth of the substantially conical depressions" (page 3, lines 34-44). Hence, it would be readily obvious to one skilled in the art to manipulate the process parameters including heating and cooling temperatures, angle of delamination, and rate of delamination in order to obtain the desired fiber cross section and length. It has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 205 USPQ 215.

Yamanashi is silent with respect to the release material. However, the use of said release materials for said template surface is known in the art. For example, Bye and Giovanelli teach a tack spinning process wherein the template surface is formed of a release material, such as a non-stick polytetrafluoroethylene material (Bye, col. 3, lines 11-15 and Giovanelli, col. 2, lines 21-35). Hence, it would have been readily obvious to one skilled in the art to employ a release material for the template surface in order to facilitate the delamination process and to minimize clogging of the depressions. Therefore, claims 19-21 are rejected.

Art Unit: 1771

Additionally, it would have been readily obvious to one skilled in the art to substitute silicone rubber as the release material in order to provide resiliency while maintaining the release feature. Silicone rubber is a release material known to be equivalent to PTFE. Thus, it would have been obvious to one skilled in the art to substitute silicone rubber for the release surface, since the equivalence of silicone rubber and PTFE as release materials is well-known in the art. As such, the choice of any of these equivalents is within the level of ordinary skill in the art. Therefore, claims 22, 24, 25, 42, 43, 46, 47, 49-52, 56, and 58 are rejected.

Furthermore, it would have been obvious to one skilled in the art to employ a polymer foam or a screen release material as the resilient material since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use. *In re Leshin*, 125 USPQ 416. Therefore, claims 23, 44, 45, 53, 54, and 57 are rejected as being obvious over the cited prior art.

Regarding claim 55, while the cited prior art does not teach the recited random array of microdepressions, it would have been readily obvious to one skilled in the art to alter the arrangement of depressions from a patterned array to a random array for aesthetic purposes or to obtain a more natural appearance. Therefore, claim 55 is also rejected.

Allowable Subject Matter

7. Claims 26-32 and 48 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

8. Claims 59-62 are allowed.

Art Unit: 1771

9. While the prior art teaches release template surfaces for producing tack spun pile substrates, the prior art fails to teach or suggest a template surface comprising a release material and a plurality of microdepressions therein wherein said microdepressions have a non-release surface.

Response to Arguments

10. Applicant's arguments filed with the amendment have been fully considered but they are not persuasive. Said arguments are answered only to the extent they are applicable to the present invention.

11. Applicant argues that the cited Bye teaches away from Yamanashi since Bye employs a substantially smooth roller, while Yamanashi employs multiple depressions (Amendment, paragraph spanning pages 13-14). In response, while Bye does teach a substantially smooth roller, the reference teaches template surfaces with cavities or depressions are known (col. 1, lines 29-33). Additionally, it is argued that the teachings of Bye which are relied upon for the rejection are also applicable for processes employing template surfaces having depressions. Therefore, applicant's argument is found unpersuasive.

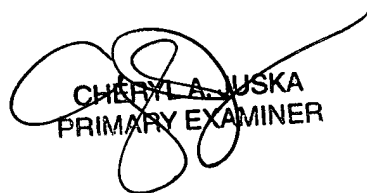
Conclusion

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cheryl Juska whose telephone number is 571-272-1477. The examiner can normally be reached on Monday-Friday 10am-6pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Terrel Morris can be reached

Art Unit: 1771

at 571-272-1478. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

13. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


CHERYL A. JUSKA
PRIMARY EXAMINER